

THE CLAIMS:

1. (Previously Presented) A method for managing print queues for a plurality of printing devices connected on a network, said method comprising the steps of:
 - detecting a printing device connected on the network;
 - requesting configuration information from the detected printing device;
 - receiving the requested configuration information from the printing device;
 - entering policy rules that govern how print queues are created and published, wherein the policy rules are entered by a system administrator;
 - accessing the policy rules;
 - creating a print queue for the printing device based on the received configuration information and based on the accessed policy rules; and
 - publishing the print queue to the network according to the accessed policy rules,

wherein the system administrator designates a maximum number of printing devices to be supported using a print queue management user interface, and a print queue is not created for a printing device once an existing number of print queues has reached the designated maximum number.

2. (Original) A method according to Claim 1, wherein the printing device is detected by detecting an address assignment message sent between an address server and the printing device over the network.

3. (Original) A method according to Claim 2, wherein the address assignment message is a DHCP message.

4. (Original) A method according to Claim 2, wherein the address assignment message contains an IP address and a MAC address corresponding to the printing device.

5. (Original) A method according to Claim 1, wherein the printing device is detected by sending a request message to each of a plurality of network addresses and receiving a response message from the printing device located at one of the plurality of network addresses.

6. (Original) A method according to Claim 5, wherein the plurality of network addresses comprises a numerical range of IP addresses.

7. (Original) A method according to Claim 5, wherein the plurality of network addresses comprises a plurality of IP address contained within a routing table.

8. (Original) A method according to Claim 1, wherein the printing device is detected by broadcasting a request message over the network and receiving a response message from the printing device connected on the network.

9. (Previously Presented) A method according to Claim 1, where the configuration information is requested by sending an SNMP message to the detected printing device.

10. (Previously Presented) A method according to Claim 1, wherein the received configuration information comprises a type of printing device corresponding to the type of the detected printing device.

11. (Previously Presented) A method according to Claim 10, wherein the received configuration information further comprises printing capabilities of the detected printing device.

12. and 13. (Cancelled)

14. (Previously Presented) A method according to Claim 1, further comprising the step of creating a print queue entry in a print queue configuration database, the print queue entry including the received configuration information.

15. (Previously Presented) A method according to Claim 14, wherein the received configuration information includes an IP address, a MAC address, and printing capabilities corresponding to the printing device associated with the print queue.

16. (Original) A method according to Claim 14, further comprising the step of creating a print queue web page containing a plurality of links representing each of the print queue entries in the print queue configuration database.

17. (Original) A method according to Claim 16, further comprising the step of receiving from a workstation on the network a selection of one of the plurality of links on the print queue web page, and in response to the selection, configuring the workstation to print to the print queue represented by the link.

18. (Original) A method according to Claim 17, wherein configuring the workstation to print to the print queue comprises transferring a print driver corresponding to the print queue to the workstation.

19. (Original) A method according to Claim 14, further comprising the steps of:

detecting a new IP address of one of the plurality of printing devices having a corresponding print queue entry in the print queue configuration database;

updating a configuration of the corresponding print queue in response to detecting a new IP address of the printing device, so that the print queue is based on the new IP address; and

updating an IP address in the print queue entry corresponding to the print queue in response to detecting a new IP address.

20. (Original) A method according to Claim 14, further comprising the steps of:

detecting new identification information of a print queue corresponding to one of the plurality of printing devices having a corresponding print queue entry in the print queue configuration database;

updating the identification information in the print queue entry corresponding to the print queue in response to detecting the new identification information; and

updating a connection between a network workstation and the print queue with the new identification information.

21. (Original) A method according to Claim 20, wherein the identification information includes a print queue name.

22. (Original) A method according to Claim 20, wherein the identification information includes a server that manages the print queue.

23. (Cancelled)

24. (Original) A method according to Claim 1, further comprising the step of creating a queue service web page which provides a user interface to a workstation on the network for print queue management.

25. (Original) A method according to Claim 24, wherein the user interface provides a process for manual creation of a print queue.

26. (Previously Presented) A method according to Claim 25, wherein the process for manual creation of a print queue comprises the steps of:

receiving a user selection from the user interface designating a printing device on the network;

obtaining configuration information about the printing device in response to receiving the user selection; and

creating a print queue, in response to a command input into the user interface, corresponding to the printing device based on the obtained information.

27. (Original) A method according to Claim 25, wherein the user interface provides a function for managing print jobs contained in a designated print queue.

28. (Original) A method according to Claim 1, further comprising the steps of:

continuously polling printing devices connected to the network;

determining if a configuration of the printing devices has changed; and

updating the print queue corresponding to a printing device whose configuration has been determined to have changed.

29. (Previously Presented) A network management device for managing print queues for a plurality of printing devices on a network, said network management device comprising:

a program memory for storing process steps executable to perform a method comprising the steps of (a) detecting a printing device connected on the network, (b) requesting configuration information from the detected printing device, (c) receiving the requested configuration information from the printing device, (d) accepting entry of policy rules that govern how print queues are created and published, wherein the policy rules are entered by a system administrator, (e) accessing the policy rules, (f) creating a print queue for the printing device based on the received configuration information and based on the accessed policy rules, and (g) publishing the print queue to the network according to the accessed policy rules; and

a processor for executing the process steps stored in said program memory, wherein the system administrator designates a maximum number of printing devices to be supported using a print queue management user interface, and a print queue is not created for a printing device once an existing number of print queues has reached the designated maximum number.

30. (Original) A network management device according to Claim 29, wherein the printing device is detected by detecting an address assignment message sent between an address server and the printing device over the network.

31. (Original) A network management device according to Claim 30,
wherein the address assignment message is a DHCP message.

32. (Original) A network management device according to Claim 30,
wherein the address assignment message contains an IP address and a MAC address
corresponding to the printing device.

33. (Original) A network management device according to Claim 29,
wherein the printing device is detected by sending a request message to each of a plurality
of network addresses and receiving a response message from the printing device located at
one of the plurality of network addresses.

34. (Original) A network management device according to Claim 33,
wherein the plurality of network addresses comprises a numerical range of IP addresses.

35. (Original) A network management device according to Claim 33,
wherein the plurality of network addresses comprises a plurality of IP address contained
within a routing table.

36. (Original) A network management device according to Claim 29,
wherein the printing device is detected by broadcasting a request message over the network
and receiving a response message from the printing device connected on the network.

37. (Previously Presented) A network management device according to Claim 29, where the configuration information is requested by sending an SNMP message to the detected printing device.

38. (Previously Presented) A network management device according to Claim 29, wherein the received configuration information comprises a type of printing device corresponding to the type of the detected printing device.

39. (Previously Presented) A network management device according to Claim 38, wherein the received configuration information further comprises printing capabilities of the detected printing device.

40. and 41. (Cancelled)

42. (Previously Presented) A network management device according to Claim 29, the method further comprising the step of creating a print queue entry in a print queue configuration database, the print queue entry including the received configuration information.

43. (Previously Presented) A network management device according to Claim 42, wherein the received configuration information includes an IP address, a MAC

address, and printing capabilities corresponding to the printing device associated with the print queue.

44. (Original) A network management device according to Claim 42, the method further comprising the step of creating a print queue web page containing a plurality of links representing each of the print queue entries in the print queue configuration database.

45. (Original) A network management device according to Claim 44, the method further comprising the step of receiving from a workstation on the network a selection of one of the plurality of links on the print queue web page, and in response to the selection, configuring the workstation to print to the print queue represented by the link.

46. (Original) A network management device according to Claim 45, wherein configuring the workstation to print to the print queue comprises transferring a print driver corresponding to the print queue to the workstation.

47. (Original) A network management device according to Claim 42, the method further comprising the steps of:

detecting a new IP address of one of the plurality of printing devices having a corresponding print queue entry in the print queue configuration database;

updating a configuration of the corresponding print queue in response to detecting a new IP address of the printing device, so that the print queue is based on the new IP address; and

updating an IP address in the print queue entry corresponding to the print queue in response to detecting a new IP address.

48. (Original) A network management device according to Claim 42, the method further comprising the steps of:

detecting new identification information of a print queue corresponding to one of the plurality of printing devices having a corresponding print queue entry in the print queue configuration database;

updating the identification information in the print queue entry corresponding to the print queue in response to detecting the new identification information; and

updating a connection between a network workstation and the print queue with the new identification information.

49. (Original) A network management device according to Claim 48, wherein the identification information includes a print queue name.

50. (Original) A network management device according to Claim 48, wherein the identification information includes a server that manages the print queue.

51. (Cancelled)

52. (Original) A network management device according to Claim 29, the method further comprising the step of creating a queue service web page which provides a user interface to a workstation on the network for print queue management.

53. (Original) A network management device according to Claim 52, wherein the user interface provides a process for manual creation of a print queue.

54. (Previously Presented) A network management device according to Claim 53, wherein the process for manual creation of a print queue comprises the steps of:

receiving a user selection from the user interface designating a printing device on the network;

obtaining configuration information about the printing device in response to receiving the user selection; and

creating a print queue, in response to a command input into the user interface, corresponding to the printing device based on the obtained information.

55. (Original) A network management device according to Claim 53, wherein the user interface provides a function for managing print jobs contained in a designated print queue.

56. (Original) A network management device according to Claim 29, the method further comprising the steps of:

continuously polling printing devices connected to the network;
determining if a configuration of the printing devices has changed; and
updating the print queue corresponding to a printing device whose configuration has been determined to have changed.

57. (Previously Presented) Computer-executable process steps stored on a computer-readable medium, said computer-executable process steps for managing print queues for a plurality of printing devices on a network, said computer-executable process steps executable to perform a method comprising the steps of:

detecting a printing device connected on the network;
requesting configuration information from the detected printing device;
receiving the requested configuration information from the printing device;
accepting entry of policy rules that govern how print queues are created and published, wherein the policy rules are entered by a system administrator;
accessing the policy rules;
creating a print queue for the printing device based on the received configuration information and based on the accessed policy rules; and
publishing the print queue to the network according to the accessed policy rules,

wherein the system administrator designates a maximum number of printing devices to be supported using a print queue management user interface, and a print queue is not created for a printing device once an existing number of print queues has reached the designated maximum number.

58. (Original) Computer-executable process steps according to Claim 57, wherein the printing device is detected by detecting an address assignment message sent between an address server and the printing device over the network.

59. (Original) Computer-executable process steps according to Claim 58, wherein the address assignment message is a DHCP message.

60. (Original) Computer-executable process steps according to Claim 58, wherein the address assignment message contains an IP address and a MAC address corresponding to the printing device.

61. (Original) Computer-executable process steps according to Claim 57, wherein the printing device is detected by sending a request message to each of a plurality of network addresses and receiving a response message from the printing device located at one of the plurality of network addresses.

62. (Original) Computer-executable process steps according to Claim 61,
wherein the plurality of network addresses comprises a numerical range of IP addresses.

63. (Original) Computer-executable process steps according to Claim 61,
wherein the plurality of network addresses comprises a plurality of IP address contained
within a routing table.

64. (Original) Computer-executable process steps according to Claim 57,
wherein the printing device is detected by broadcasting a request message over the network
and receiving a response message from the printing device connected on the network.

65. (Previously Presented) Computer-executable process steps according to
Claim 57, where the configuration information is requested by sending an SNMP message
to the detected printing device.

66. (Previously Presented) Computer-executable process steps according to
Claim 57, wherein the received configuration information comprises a type of printing
device corresponding to the type of the detected printing device.

67. (Previously Presented) Computer-executable process steps according to
Claim 66, wherein the received configuration information further comprises printing
capabilities of the detected printing device.

68. and 69. (Cancelled)

70. (Previously Presented) Computer-executable process steps according to Claim 57, the method further comprising the step of creating a print queue entry in a print queue configuration database, the print queue entry including the received configuration information.

71. (Previously Presented) Computer-executable process steps according to Claim 70, wherein the received configuration information includes an IP address, a MAC address, and printing capabilities corresponding to the printing device associated with the print queue.

72. (Original) Computer-executable process steps according to Claim 70, the method further comprising the step of creating a print queue web page containing a plurality of links representing each of the print queue entries in the print queue configuration database.

73. (Original) Computer-executable process steps according to Claim 72, the method further comprising the step of receiving from a workstation on the network a selection of one of the plurality of links on the print queue web page, and in response to the selection, configuring the workstation to print to the print queue represented by the link.

74. (Original) Computer-executable process steps according to Claim 73, wherein configuring the workstation to print to the print queue comprises transferring a print driver corresponding to the print queue to the workstation.

75. (Original) Computer-executable process steps according to Claim 70, the method further comprising the steps of:

detecting a new IP address of one of the plurality of printing devices having a corresponding print queue entry in the print queue configuration database;

updating a configuration of the corresponding print queue in response to detecting a new IP address of the printing device, so that the print queue is based on the new IP address; and

updating an IP address in the print queue entry corresponding to the print queue in response to detecting a new IP address.

76. (Original) Computer-executable process steps according to Claim 70, the method further comprising the steps of:

detecting new identification information of a print queue corresponding to one of the plurality of printing devices having a corresponding print queue entry in the print queue configuration database;

updating the identification information in the print queue entry corresponding to the print queue in response to detecting the new identification information; and

updating a connection between a network workstation and the print queue with the new identification information.

77. (Original) Computer-executable process steps according to Claim 76, wherein the identification information includes a print queue name.

78. (Original) Computer-executable process steps according to Claim 76, wherein the identification information includes a server that manages the print queue.

79. (Cancelled)

80. (Original) Computer-executable process steps according to Claim 57, the method further comprising the step of creating a queue service web page which provides a user interface to a workstation on the network for print queue management.

81. (Original) Computer-executable process steps according to Claim 80, wherein the user interface provides a process for manual creation of a print queue.

82. (Previously Presented) Computer-executable process steps according to Claim 81, wherein the process for manual creation of a print queue comprises the steps of:
receiving a user selection from the user interface designating a printing device on the network;

obtaining configuration information about the printing device in response to receiving the user selection; and

creating a print queue, in response to a command input into the user interface, corresponding to the printing device based on the obtained information.

83. (Original) Computer-executable process steps according to Claim 81, wherein the user interface provides a function for managing print jobs contained in a designated print queue.

84. (Original) Computer-executable process steps according to Claim 57, the method further comprising the steps of:

continuously polling printing devices connected to the network;
determining if a configuration of the printing devices has changed; and
updating the print queue corresponding to a printing device whose configuration has been determined to have changed.

85. (Previously Presented) A computer-readable medium which stores computer-executable process steps, the computer-executable process steps to manage print queues for a plurality of printing devices on a network, said computer-executable process steps comprising process steps executable to perform a method comprising the steps of:

detecting a printing device connected on the network;
requesting configuration information from the detected printing device;

receiving the requested configuration information from the printing device; accepting entry of policy rules that govern how print queues are created and published, wherein the policy rules are entered by a system administrator; accessing the policy rules; creating a print queue for the printing device based on the received configuration information and based on the accessed policy rules; and publishing the print queue to the network according to the accessed policy rules,

wherein the system administrator designates a maximum number of printing devices to be supported using a print queue management user interface, and a print queue is not created for a printing device once an existing number of print queues has reached the designated maximum number.

86. (Original) A computer-readable medium according to Claim 85, wherein the printing device is detected by detecting an address assignment message sent between an address server and the printing device over the network.

87. (Original) A computer-readable medium according to Claim 86, wherein the address assignment message is a DHCP message.

88. (Original) A computer-readable medium according to Claim 86,
wherein the address assignment message contains an IP address and a MAC address
corresponding to the printing device.

89. (Original) A computer-readable medium according to Claim 85,
wherein the printing device is detected by sending a request message to each of a plurality
of network addresses and receiving a response message from the printing device located at
one of the plurality of network addresses.

90. (Original) A computer-readable medium according to Claim 89,
wherein the plurality of network addresses comprises a numerical range of IP addresses.

91. (Original) A computer-readable medium according to Claim 89,
wherein the plurality of network addresses comprises a plurality of IP address contained
within a routing table.

92. (Original) A computer-readable medium according to Claim 85,
wherein the printing device is detected by broadcasting a request message over the network
and receiving a response message from the printing device connected on the network.

93. (Previously Presented) A computer-readable medium according to
Claim 85, where the configuration information is requested by sending an SNMP message
to the detected printing device.

94. (Previously Presented) A computer-readable medium according to
Claim 85, wherein the received configuration information comprises a type of printing
device corresponding to the type of the detected printing device.

95. (Previously Presented) A computer-readable medium according to
Claim 94, wherein the received configuration information further comprises printing
capabilities of the detected printing device.

96. and 97. (Cancelled)

98. (Previously Presented) A computer-readable medium according to
Claim 85, the method further comprising the step of creating a print queue entry in a print
queue configuration database, the print queue entry including the received configuration
information.

99. (Previously Presented) A computer-readable medium according to
Claim 98, wherein the received configuration information includes an IP address, a MAC

address, and printing capabilities corresponding to the printing device associated with the print queue.

100. (Original) A computer-readable medium according to Claim 98, the method further comprising the step of creating a print queue web page containing a plurality of links representing each of the print queue entries in the print queue configuration database.

101. (Original) A computer-readable medium according to Claim 100, the method further comprising the step of receiving from a workstation on the network a selection of one of the plurality of links on the print queue web page, and in response to the selection, configuring the workstation to print to the print queue represented by the link.

102. (Original) A computer-readable medium according to Claim 101, wherein configuring the workstation to print to the print queue comprises transferring a print driver corresponding to the print queue to the workstation.

103. (Original) A computer-readable medium according to Claim 98, the method further comprising the steps of:

detecting a new IP address of one of the plurality of printing devices having a corresponding print queue entry in the print queue configuration database;

updating a configuration of the corresponding print queue in response to detecting a new IP address of the printing device, so that the print queue is based on the new IP address; and

updating an IP address in the print queue entry corresponding to the print queue in response to detecting a new IP address.

104. (Original) A computer-readable medium according to Claim 98, the method further comprising the steps of:

detecting new identification information of a print queue corresponding to one of the plurality of printing devices having a corresponding print queue entry in the print queue configuration database;

updating the identification information in the print queue entry corresponding to the print queue in response to detecting the new identification information; and

updating a connection between a network workstation and the print queue with the new identification information.

105. (Original) A computer-readable medium according to Claim 104, wherein the identification information includes a print queue name.

106. (Original) A computer-readable medium according to Claim 104, wherein the identification information includes a server that manages the print queue.

107. (Cancelled)

108. (Original) A computer-readable medium according to Claim 85, the method further comprising the step of creating a queue service web page which provides a user interface to a workstation on the network for print queue management.

109. (Original) A computer-readable medium according to Claim 108, wherein the user interface provides a process for manual creation of a print queue.

110. (Previously Presented) A computer-readable medium according to Claim 109, wherein the process for manual creation of a print queue comprises the steps of:
receiving a user selection from the user interface designating a printing device on the network;
obtaining configuration information about the printing device in response to receiving the user selection; and
creating a print queue, in response to a command input into the user interface, corresponding to the printing device based on the obtained information.

111. (Original) A computer-readable medium according to Claim 109, wherein the user interface provides a function for managing print jobs contained in a designated print queue.

112. (Original) A computer-readable medium according to Claim 85, the method further comprising the steps of:

continuously polling printing devices connected to the network;
determining if a configuration of the printing devices has changed; and
updating the print queue corresponding to a printing device whose configuration has been determined to have changed.

113. (Previously Presented) A method according to Claim 1, wherein said policy rules include rules which regulate use of the print queue by client workstations connected to the network.

114. (Cancelled)

115. (Previously Presented) A network management device according to Claim 29, wherein said policy rules include rules which regulate use of the print queue by client workstations connected to the network.

116. (Cancelled)

117. (Previously Presented) Computer-executable process steps according to Claim 57, wherein said policy rules include rules which regulate use of the print queue by client workstations connected to the network.

118. (Cancelled)

119. (Previously Presented) A computer-readable medium according to
Claim 85, wherein said policy rules include rules which regulate use of the print queue by
client workstations connected to the network.

120. (Cancelled).